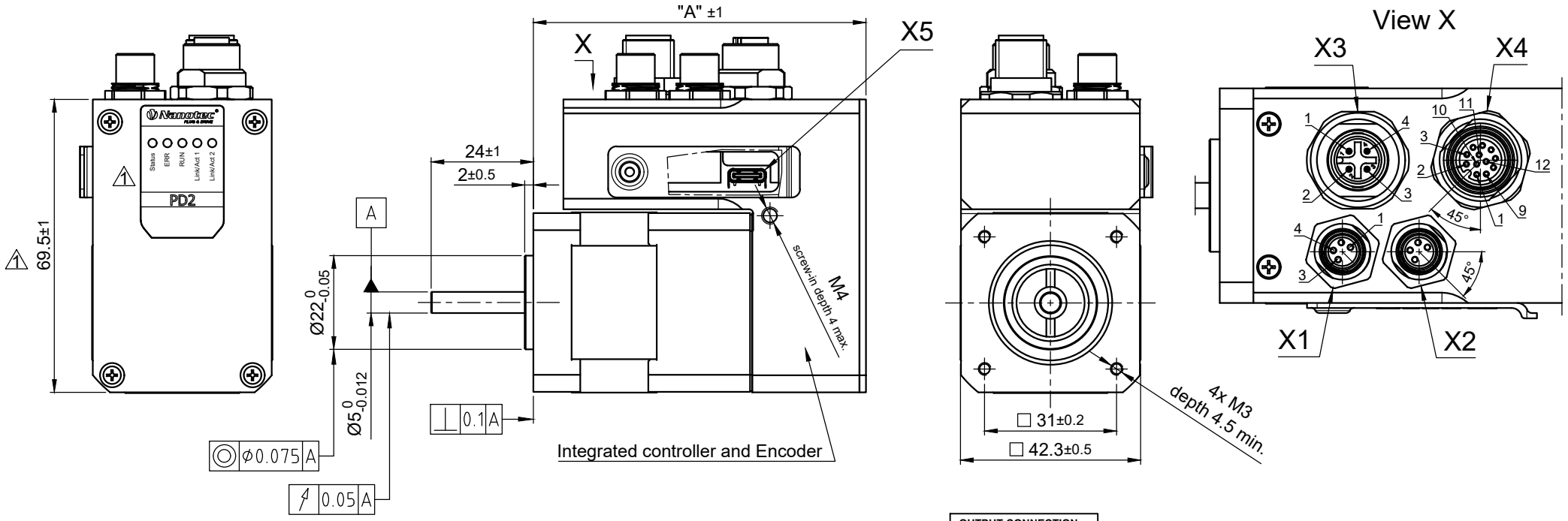
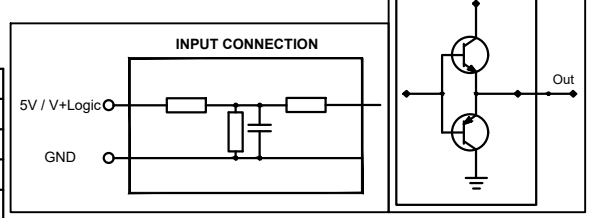
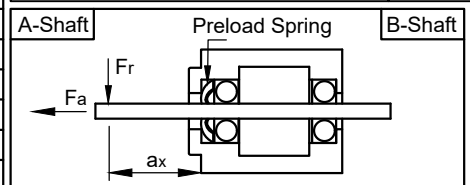






Max. Axial Force Fa	N	10
Max. Radial Force Fr (a = 20 mm)	N	28
Axial Play Fa = 4.0 N	mm	0.08
Radial Play Fr = 4.0 N	mm	0.02

X1	EtherCAT IN
M8/ 4-Pole / A-Coding / female	
cable shield on housing	

X2	EtherCAT OUT
M8/ 4-Pole / A-Coding / female	
Pin No.	Function
1	TD+
2	RD+
3	TD-
4	RD-
cable shield on housing	

X3	POWER
M12 / 4-Pole / A-Coding / male	
Pin No.	Function
1	V+
2	V+
3	GND
4	GND
cable shield on housing	

X4	IO
M12 / 12-Pole / A-Coding / female	
Pin No.	Function
1	GND
2	Input 1
3	Input 2
4	Input 3
5	Input 4
6	Analog Input1
7	Analog Input2
8	Output 1 (push-pull)
9	Output 2 (push-pull)
10	V+Logic
11	Brake +
12	Brake -
cable shield on housing	

X5	USB
Type C	

MOTOR SPECIFICATION							
PD2-E421x-x-65-1		M-E	M-M	L-E	L-M	D-E	D-M
Motor Length "**A**" 1	mm	75.5	82.5	87.0	94.0	93.5	100.5
Operating Voltage -5%/+20%	V DC	1	12 ... 48				
Current per Winding	A	1.8		1.8		1.8	
Resistance per Phase (20°C) ±15%	Ω	1.1		1.75		3.0	
Inductance per Phase (1kHz) ±20%	mH	1.85		3.3		7.0	
Step Angle ±5%	°	1.8		1.8		1.8	
Holding Torque	Nm	0.28		0.5		0.8	
Rotor Inertia	kg m²	5.7 x10^{-6}		8.2 x10^{-6}		10.2x10^{-6}	
Multiturn Encoder Resolution	bit	--	16	--	16	--	16
Singleturn Encoder Resolution	bit	16	17	16	17	16	17
Weight ±10%	kg	0.42	0.44	0.52	0.54	0.68	0.7

GENERAL MOTOR SPECIFICATION		
Interface		ETHERCAT
Ambient Temperature	°C	-10 ...40
Storage Temperature	°C	-20 ...85
Max. Ambient Humidity (non condensing)	%	85
Insulation Class		B
Insulation Resistance (@500VDC)	MΩ	100
Dielectric Strength (for 1 min - coil to case)	V AC	500
Protection Class (except shaft outlet)		IP65

ISO 8015	ISO 1302	ISO 2768 cK	ISO 13715

					Date	Name
				Drawn	21.01.2026	Schneid_A
				Reviewed	03.03.2026	Reith_S
				Released	03.03.2026	Reith_S
01	change dimension	Reith_S	07.07.2026			
REV	Rev. Text	Name	Date			

Nanotec PLUG & DRIVE

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